In the Abstract

Kindly enter the following into the Official File:

A method for detecting chemical species present in a condensed medium including determining characteristic wavelengths and intensity values of back-scattered electromagnetic emission signals due to fluorescence of chemical species excited in response to a multiplicity of electromagnetic excitations of distinct wavelengths of at least one chemical species that could be contained in the condensed medium; successively exciting a multiplicity of surface elements of a surface portion of the condensed medium with a laser beam having tunable wavelength capable of taking on at least one of value of the distinct wavelengths of the multiplicity of electromagnetic excitations; successively recording wavelengths and intensity values of the electromagnetic emission signals back-scattered by each of the surface elements in response to the electromagnetic excitations produced by the beam; comparing at least one excitation wavelength and at least one corresponding emission wavelength of the recorded intensity value of the electromagnetic signal back-scattered by each of the surface elements with the determined characteristic intensity value of the back-scattered electromagnetic signal of the chemical species that could be contained in the surface portion; and determining the presence of the chemical species in each of the surface elements when the recorded intensity value of the electromagnetic signal back-scattered by the surface element is greater than a threshold defined at least by the determined characteristic intensity value of the back-scattered electromagnetic signal of the chemical species.